



6. Test of Radiated Spurious Emission

6.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3



6.2 Test Procedures

- a. The EUT was placed on a rotatable table top 0.8 meter above ground.
- b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- c. The table was rotated 360 degrees to determine the position of the highest radiation.
- d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

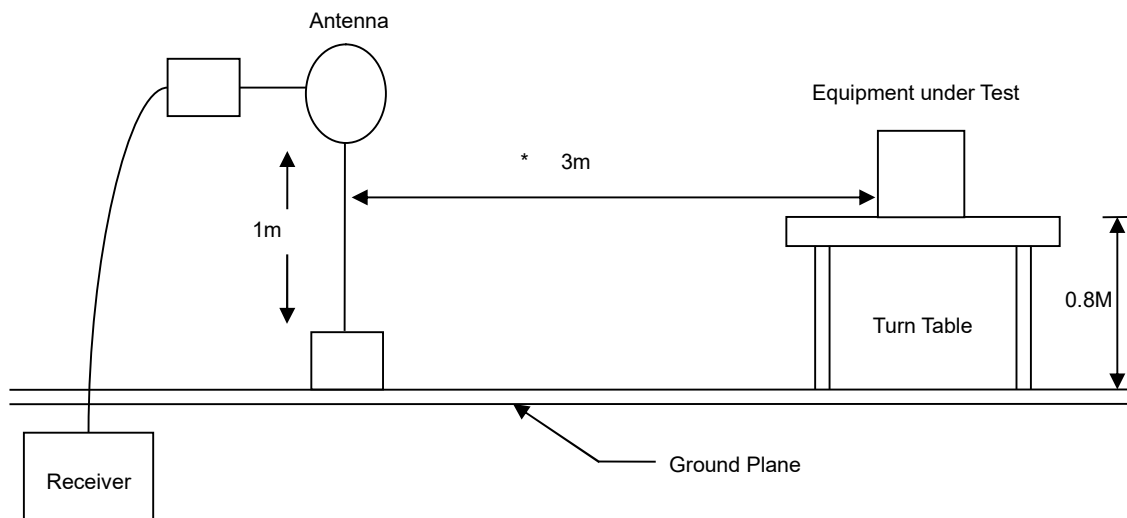
Note:

1. The supporting fixture shall permit orientation of the EUT in each of three orthogonal axis positions such that emissions from the EUT are maximized. (Y-AXIS is the worst.)
2. Due to the test software function limit the operation band setting (200dBuV/m). There's no corresponding limitation in the actual test item.

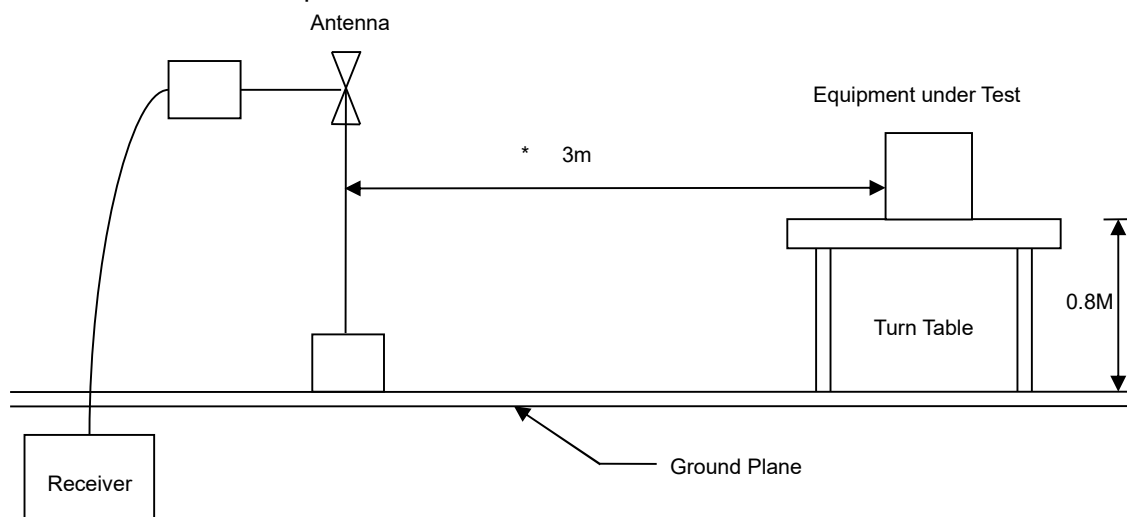


6.3 Typical Test Setup

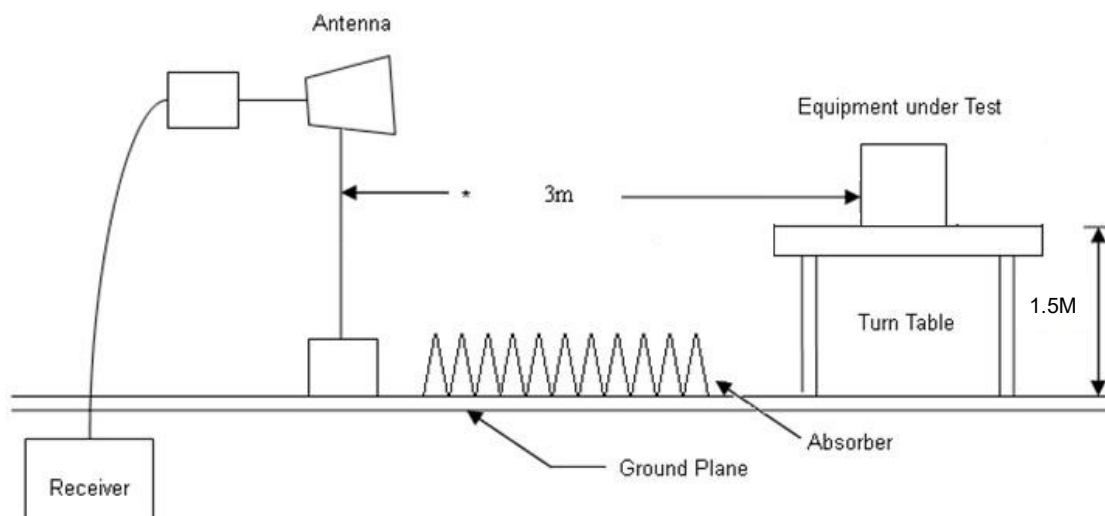
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



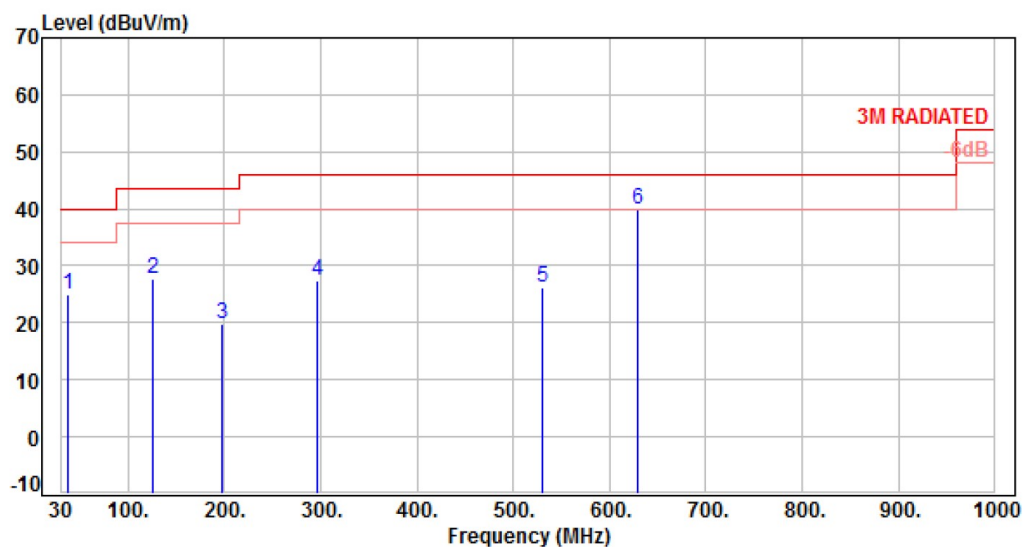


6.4 Test Result and Data (9KHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

6.5 Test Result and Data (30MHz ~ 1GHz)

Power	: AC 240V / 60Hz from PoE	Pol/Phase	: VERTICAL
Test Mode	: Mode 5, 11b CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	37.76	-11.60	36.63	25.03	40.00	-14.97	Peak	400	360	P
2	125.06	-13.14	40.80	27.66	43.50	-15.84	Peak	400	360	P
3	196.84	-14.01	33.71	19.70	43.50	-23.80	Peak	400	360	P
4	295.78	-10.27	37.74	27.47	46.00	-18.53	Peak	400	360	P
5	530.52	-4.45	30.67	26.22	46.00	-19.78	Peak	400	360	P
6	629.46	-2.12	41.93	39.81	46.00	-6.19	Peak	400	360	P

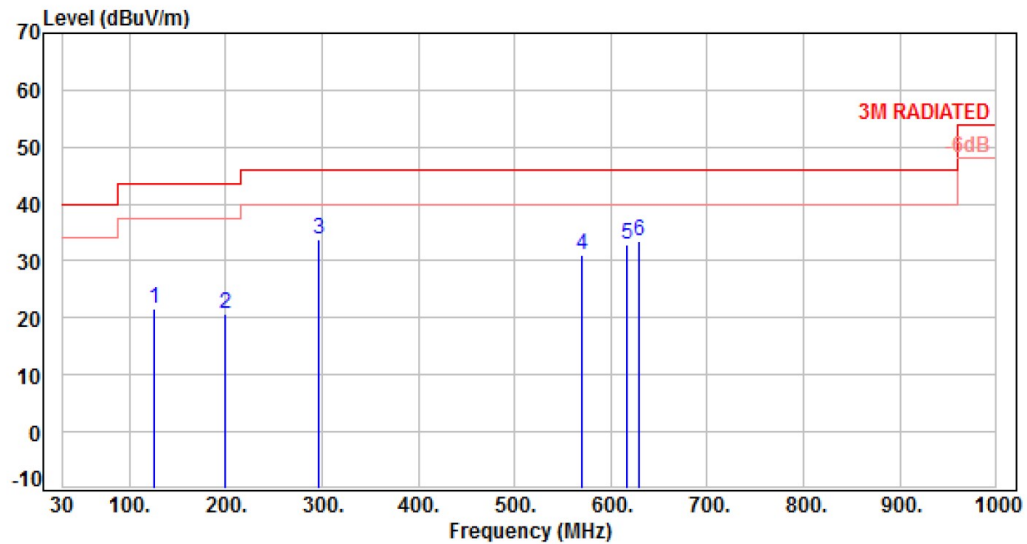
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 240V / 60Hz from PoE	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, 11b CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	125.06	-13.14	34.66	21.52	43.50	-21.98	Peak	400	0	P
2	198.78	-13.93	34.73	20.80	43.50	-22.70	Peak	400	0	P
3	295.78	-10.27	44.16	33.89	46.00	-12.11	Peak	400	0	P
4	569.32	-3.63	34.68	31.05	46.00	-14.95	Peak	400	0	P
5	615.88	-2.27	35.04	32.77	46.00	-13.23	Peak	400	0	P
6	629.46	-2.12	35.73	33.61	46.00	-12.39	Peak	400	0	P

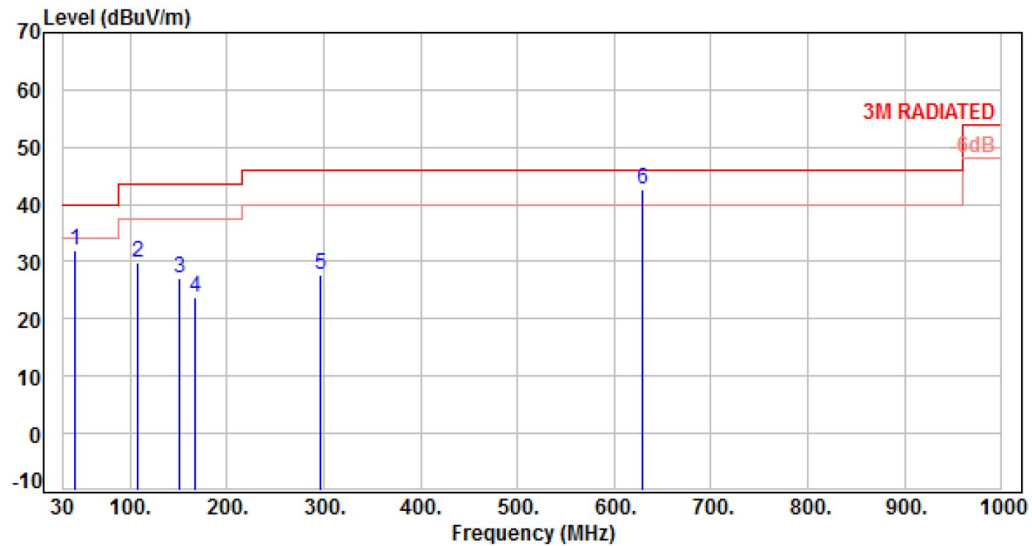
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz from PoE	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, 11ax HE20 CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	43.58	-10.71	42.67	31.96	40.00	-8.04	Peak	400	0	P
2	107.60	-14.43	44.16	29.73	43.50	-13.77	Peak	400	0	P
3	150.28	-10.74	37.82	27.08	43.50	-16.42	Peak	400	0	P
4	167.74	-11.18	34.96	23.78	43.50	-19.72	Peak	400	0	P
5	295.78	-10.27	37.96	27.69	46.00	-18.31	Peak	400	0	P
6	629.46	-2.12	44.66	42.54	46.00	-3.46	Peak	400	0	P

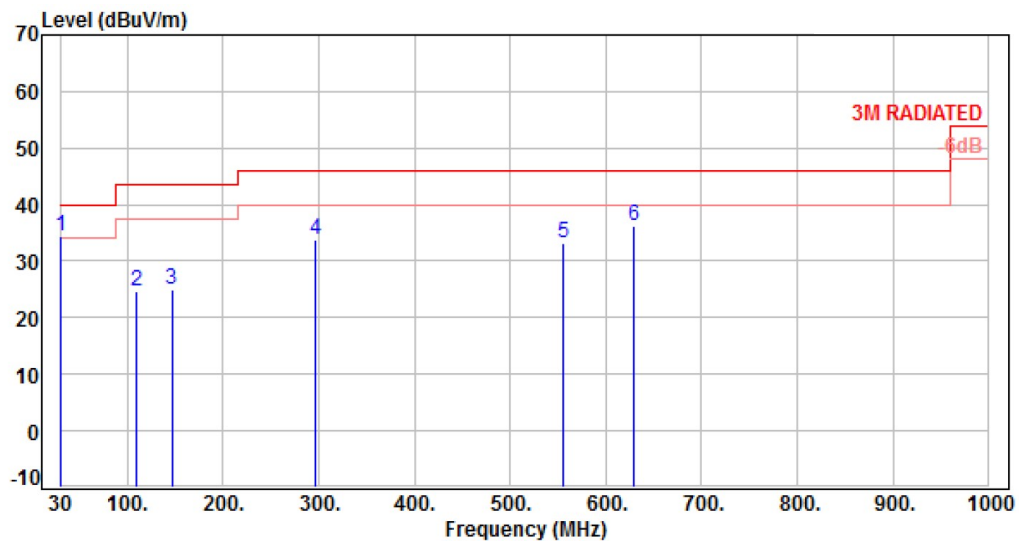
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz from PoE	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, 11ax HE20 CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	30.00	-12.89	47.40	34.51	40.00	-5.49	Peak	400	360	P
2	109.54	-14.21	38.94	24.73	43.50	-18.77	Peak	400	360	P
3	146.40	-10.86	35.81	24.95	43.50	-18.55	Peak	400	360	P
4	295.78	-10.27	43.96	33.69	46.00	-12.31	Peak	400	360	P
5	555.74	-4.05	37.19	33.14	46.00	-12.86	Peak	400	360	P
6	629.46	-2.12	38.27	36.15	46.00	-9.85	Peak	400	360	P

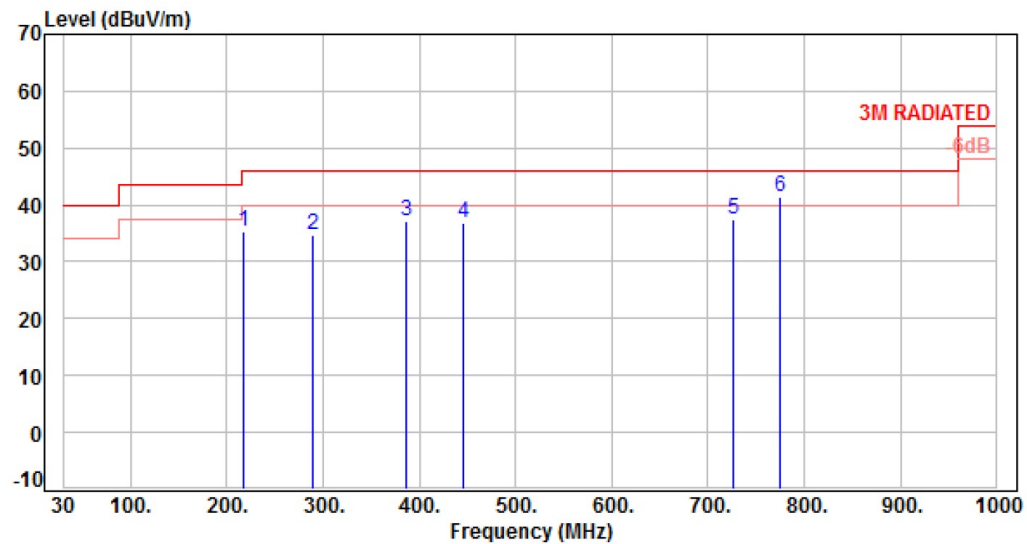
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz from PoE	Pol/Phase	: VERTICAL
Test Mode	: Mode 8, 11b CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	218.18	-13.76	49.17	35.41	46.00	-10.59	Peak	400	0	P
2	289.96	-10.41	45.06	34.65	46.00	-11.35	Peak	400	0	P
3	386.96	-7.73	44.97	37.24	46.00	-8.76	Peak	400	0	P
4	445.16	-6.04	42.78	36.74	46.00	-9.26	Peak	400	0	P
5	726.46	-0.67	38.02	37.35	46.00	-8.65	Peak	400	0	P
6	774.96	0.44	41.03	41.47	46.00	-4.53	Peak	400	0	P

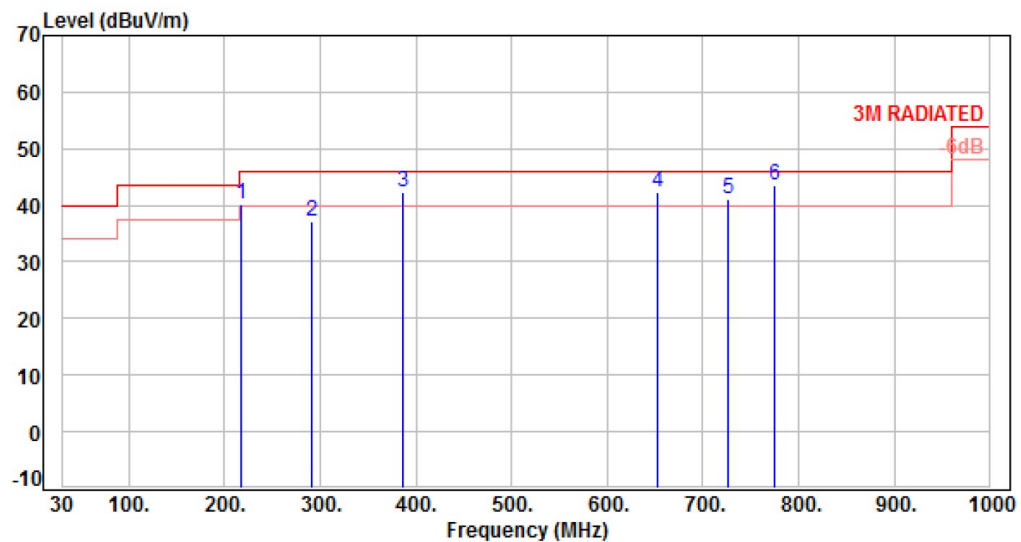
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V / 60Hz from PoE	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 8, 11b CH06		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	218.18	-13.76	53.88	40.12	46.00	-5.88	Peak	400	360	P
2	291.90	-10.36	47.36	37.00	46.00	-9.00	Peak	400	360	P
3	386.20	-7.76	50.11	42.35	46.00	-3.65	QP	100	208	P
4	652.74	-1.80	44.07	42.27	46.00	-3.73	Peak	400	360	P
5	726.46	-0.67	41.71	41.04	46.00	-4.96	Peak	400	360	P
6	774.96	0.44	43.20	43.64	46.00	-2.36	QP	100	208	P

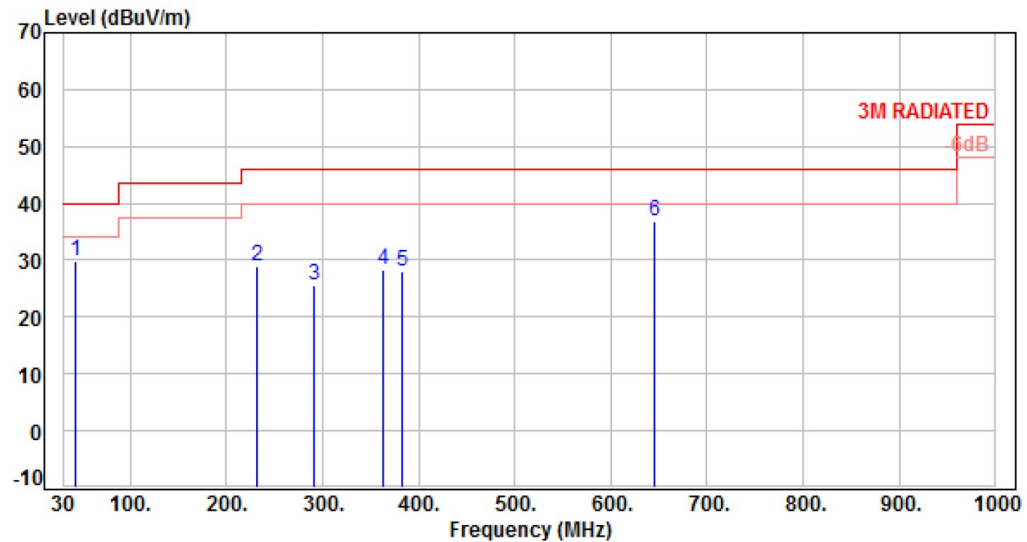
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 240V / 60Hz from PoE	Pol/Phase	: VERTICAL
Test Mode	: Mode 14, 11ax HE20 CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	43.58	-10.71	40.43	29.72	40.00	-10.28	Peak	400	360	P
2	231.76	-13.60	42.60	29.00	46.00	-17.00	Peak	400	360	P
3	291.90	-10.36	36.03	25.67	46.00	-20.33	Peak	400	360	P
4	363.68	-8.54	36.86	28.32	46.00	-17.68	Peak	400	360	P
5	383.08	-7.82	35.75	27.93	46.00	-18.07	Peak	400	360	P
6	644.98	-1.94	38.85	36.91	46.00	-9.09	Peak	400	360	P

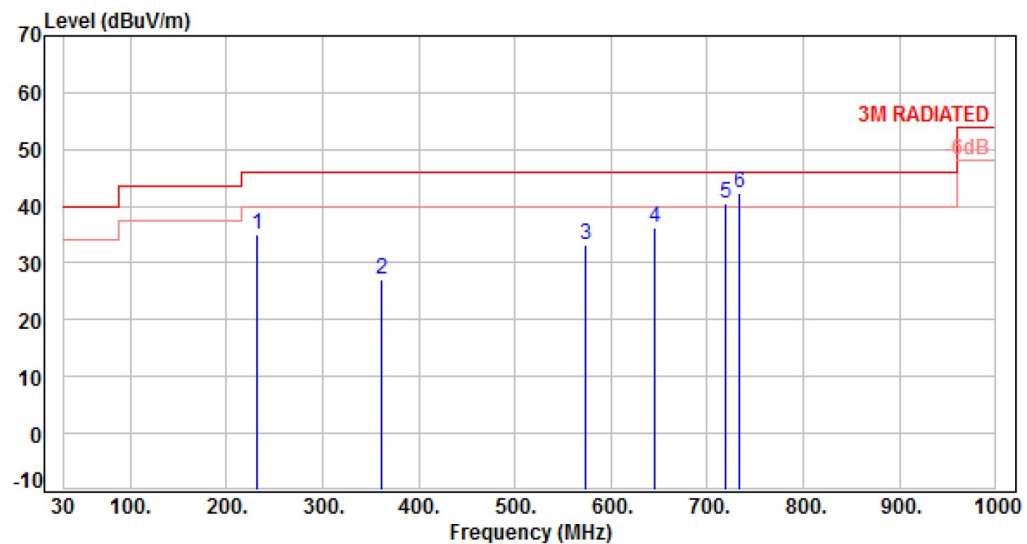
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 240V / 60Hz from PoE	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 14, 11ax HE20 CH11		:



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	231.76	-13.60	48.65	35.05	46.00	-10.95	Peak	400	0	P
2	361.74	-8.58	35.62	27.04	46.00	-18.96	Peak	400	0	P
3	573.20	-3.52	36.81	33.29	46.00	-12.71	Peak	400	0	P
4	644.98	-1.94	38.21	36.27	46.00	-9.73	Peak	400	0	P
5	718.70	-0.92	41.30	40.38	46.00	-5.62	Peak	400	0	P
6	734.22	-0.42	42.79	42.37	46.00	-3.63	Peak	400	0	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor